IMPERIAL MYCOLOGICAL
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INSTITUTE

BERMUDA

REPORT

of the

DEPARTMENT

of

AGRICULTURE

for the year

1943

Report of Director of Agriculture, 1943.

Chairman,
Board of Agriculture.

I. AGRICULTURE IN 1943.

Before describing the progress of Agriculture during 1943 it may be of value to outline the four main aims of agricultural policy at this time, namely,

(1) Increasing production of food, and especially "out-of-season" crops and fruit.

(2) Promoting the conservation and orderly marketing of local produce.

(3) Improving the health and conditions of livestock, and encouraging the growing of more fodder.

(4) Arousing interest in improved methods of husbandry.

The progress made towards these various aims was greater in some cases than in others and is described in the pages which follow. In general the year was not a successful one for farmers as it was marred by a failure of potato crops and of vegetable crops planted in the Autumn months. The weather was good in the early part of the year, and, except for a short drought in the early summer, until August. In September and October there was an unprecedented rainfall which washed away the plantings of vegetables. The total rainfall for the year as recorded at the Agricultural Station was 71.92 inches, of which 11.34 inches fell in September and 12.82 inches in October. These figures are significant when compared with the mean annual rainfall for the previous ten years of 56.37 inches.

The labour situation remained difficult on farms as a result of heavy demands for labour from the military and naval bases. In view of the importance of maintaining food production, a number of young men, who would normally have been conscripted for military service, were granted temporary exemption on certification by the Department that they were wholly employed in farm-work, and a word of appreciation is due to the Exemption Tribunal for their close working with the Department in this matter.

No difficulty was experienced in obtaining the necessary supplies of vegetable seeds all of which were imported from the United States, but inconvenience was caused in some instances by delay in their delivery. This occurred also with the Triumph seed potatoes from Nova Scotia which arrived nearly a month late, and too late to crop successfully. Supplies of fertiliser and of fungicides were adequate, thanks to the efforts of the supply authorities in Bermuda and overseas.

The Chief Food Crops. The potato crops were disappointing for which the condition of the seed was largely to blame. The main planting consisted chiefly of Chili Garnets from Nova Scotia and this seed proved to be heavily infected with leafroll, counts showing as much as 40 percent infection being made in the field. The variety Sebago was tried for the first time on an appreciable scale, the seed being imported from Maine. While this variety showed good promise, its yield in this instance was marred by infection of black-leg.

Plantings of Bermuda-grown Triumph seed made in the first half of September gave good results and lent added force to the Department's recommendation that all the seed for this crop be home-grown. The imported Triumph seed, which came from Nova Scotia more than a month later, ran into bad weather and blight with fatal consequences.

The largest area of sweet-potatoes to be planted for very many years was spoilt by the wet season which encouraged growth of vines at the expense of roots, and a poor crop was reaped. As this crop had been counted upon to fill in the period when Irish potatoes were short, the double failure led to a shortage of potatoes from September to November.

Other vegetables did well during the first half of the year and crops of good size and quality were reaped. Onions perhaps deserve special mention for their excellence. All vegetables found a ready sale with the exception of carrots, celery, and cabbage which for a period in the late spring were hard to sell and suffered some wastage. There were good crops of melons in the summer, and recent seasons have seen a notable increase in production of musk-melons and cantaloupes, possibly a result of the introduction of the new mildew-resistant varieties.

The Easter Lily Trade. The demand in North America for Bermuda-grown bulbs remained excellent and good prices were obtained for the bulbs which were exported. Although the acreage planted with Easter lilies showed an increase, the crop was smaller than in 1942, and the total exports amounted to 3448 cases of lily bulbs as against 3774 in 1942. Small quantities of narcissus, amaryllis, and roman hyacinth bulbs were shipped chiefly to Canada.

Livestock. Supplies of imported feed were much more regular than in the previous year and, while they continued to be rationed, the rations were fairly liberal for most types of livestock. Increased interest was taken by dairymen in the growing of fodder-crops, such as field corn and soy-beans, which are cut as required for green feed.

The year was notable for a flare-up of tuberculosis amongst cattle as shown by results of official tests. Causes blamed for this outbreak included the feed-shortage in 1942, unbalanced feeding, a great increase in the buying and selling of cattle in recent years, and inadequate provisions for the testing of all cattle. Prompt measures were taken which are described under the heading of Veterinary Work and they are designed not only to check the spread of this disease but eventually to eradicate it.

Apart from the hazard of disease, the year under review proved a more successful one for dairymen than the preceding wartime years. Some of the difficulties which accompanied the start of compulsory pasteurisation have resolved themselves and relations between producers

and pasteurisers are considerably better than at the start. Under the supervision of the Milk Inspector of the Public Health Department the actual processing is being done more efficiently and the quality of the product is making steady advance. At the close of the year there were six privately-owned pasteurising-plants processing all the milk produced for sale. Four of these are in the central parishes and there is undoubtedly unnecessary replication of effort and expenditure. Since the high cost of milk restricts its use and encourages importation of the tinned product, it is essential that every means of reducing its price be explored, and the advantages of co-operative or centralised processing of milk deserve to be carefully considered.

Agricultural Scholarships. A step which promises well for the future was the establishment of scholarships to provide training to young men and women interested in farming. A committee of the Board appointed early in the year under the chairmanship of Mr. C. V. Zuill met to consider the setting up of scholarships and was ably assisted in drafting regulations by a committee of the Board of Education. The regulations were approved by the two Boards and by the Legislature and financial provision for an immediate start was made. Under the scheme, two candidates, of 16 years or older, are selected each year and are sent to an Agricultural College overseas for two years, at the end of which time they are required to return to Bermuda and engage in agriculture for at least three years. In order to ensure that there may be candidates for these scholarships from all classes of the community with adequate schooling to avail themselves of this opportunity, the scheme also provides for the appointment of two junior scholars annually of the age of 12 who are sent to a secondary school for four years. The junior scholars are not necessarily to be awarded a senior scholarship later, nor is the appointment of a senior scholarship restricted to those who have held a junior scholarship. Two senior scholars were appointed in the persons of Augustine Rego and Stanley Terceira who entered for the Diploma Course at Macdonald College, Province of Quebec in November. Two junior scholarships were awarded to commence in January 1944, to Angelena Middleton at the Bermuda High School for Girls and Lawrence Smith at the Berkeley Institute. It is hoped that these scholarships will result in there being farmers with modern ideas and trained in efficient methods who may act as leaders in the farming community. They should also ensure a valuable source of trained junior officers for the Department.

II WORK OF THE DEPARTMENT.

The supervision of food-production and the marketing of produce made extra demands on members of the Department for whom the year was a particularly strenuous one.

Planned Production. Under pre-war conditions the production of vegetables was seasonal, a large surplus being produced between February and July which was shipped abroad to Canada. Since 1941 the export of vegetables has not been possible and an effort has been made to plan production so that the peak would be levelled and no unmanageable surplus result. The system followed has been described in the Report for 1942. The Production and Marketing Committee of the Board estimated the quantity of the staple vegetables required each month, and, in co-operation with the War-Time Supplies Commission, minimum and maximum prices were set, designed to protect the consumer while giving the producer a

fair return under normal cropping conditions. The Department estimated the area to be planted to ensure this supply and regular visits were paid to farms to survey the acreage planted and to exhort growers to plant in conformity with the plan of production.

Whilst production during the spring and early summer is adequate and has to be directed so that no unmanageable surplus of any one vegetable is grown, the same is far from the case from the middle of July until November when green vegetables are scarce. Special efforts were accordingly made to increase production during this off-season and the attention of growers was drawn to suitable summer crops. The bad weather in September and October marred the results, but it is noticeable that, by one way or another, growers are striving to arrive at a year-round production.

The Department continued to assist farmers by hiring out agricultural equipment. A farm-tractor with ploughs and harrows, operated by the Department, was at their service and proved so popular that there was a waiting-list for its use almost throughout the year. A silage-cutter was bought by the Department and was hired out as required. Two power-sprayers were kept in operation for the spraying of crops and these were very busy during certain seasons. One of them was mounted on a motor-truck kindly supplied by the Department of Public Works, and the added mobility greatly assisted the usefulness of the equipment.

Increased duties fell on the Department with respect to the agricultural supplies, farm-tools, fertilisers, insecticides, and seeds, needed for the Colony. Stocks were kept under continual review and estimates of future requirements and, in some cases, orders for their purchase were made to the Supply Authorities. The Department made itself responsible for finding most of the seed potatoes required for planting. At the request of the Board, Mr. E. A. McCallan, a former Director, travelled to Nova Scotia and selected seed to be planted in the autumn of 1943 and the spring of 1944. As a result seed potatoes of high quality were obtained. Large quantities of vegetable seedlings were started at the Agricultural Station at intervals throughout the planting-seasons and these were sold at a low cost to farmers and to gardeners.

Orderly Marketing. A new venture started at the beginning of the year was a wholesale market situated beside the Government Cold Storage Plant and run in conjunction with it. Constant complaints had been heard from shop-keepers, hotel-stewards, and other large users of vegetables that they could not count on a steady and dependable source of local produce; while many small growers on the other hand complained that they could not find a sale for their produce unless they came to town and hawked it from store to store. The Marketing Centre was designed to resolve these difficulties, to collect produce from the many small sources, and to form a reservoir on which the larger users could draw. The Marketing Officer was kept informed of sources of supply through personal contact with growers and through the Department's farm-surveys, and he arranged sales with store-keepers and others interested in buying vegetables. The Marketing Centre soon proved its worth and by the end of the season a useful business had been established. Its successful start owes much to the efficient and tactful management of Mr. Jas. Hollis who acted throughout the year as Marketing Officer.

Reference may be made to two Government measures designed to assist the orderly marketing of vegetables which were adopted in 1942 and were repeated in 1943. From 8th February until 1st August, the sale of canned vegetables was prohibited with the object of encouraging the maximum use of fresh vegetables. Then, in order to assist the marketing of main potato crop without undue wastage, the Department was authorised to buy potatoes from farmers at the time of digging, and arrangements were made for their storage under the best possible conditions during the summer months. Although the crop was not large, growers were greatly helped by being able to make a ready sale and by not having to store the potatoes in their barns during the hot weather unsold. The Agricultural Assistant was responsible for the storage and disposal of the potatoes which were purchased, and they were kept until the beginning of August without serious wastage.

Conservation of Food-Crops. Although efforts have been made to flatten the peak of production, so that fresh vegetables will be available throughout the greater part of the year, production inevitably remains much easier in some seasons of the year than others. Close attention has accordingly been given to means of conserving vegetables from periods of plenty to times of scarcity. The Government Cold Storage Plant was fully used and proved of great benefit. During the summer months indeed the demand for space was greater than its capacity, and, through the kind courtesy of the United States Army, additional refrigerated space at Fort Bell was made available for several weeks. The canning of vegetables which was started as a wartime measure in the season of 1940 was continued by the Department in the year under review. The vegetables chiefly canned were beets and carrots and, to smaller extent, string beans, tomatoes, and tomato juice. In order to save tin, the use of glass bottles was tried for the juice but loss from breakage which occurred during processing discounted any saving. Storage-tests of vegetables kept in bins in a forced draught of air gave sufficiently good results with potatoes to justify a further trial but proved useless for carrots, and cabbage which dried up rapidly.

At the request of the Board, the Plant Pathologist travelled to the United States and Canada to investigate the process of dehydration as a means of conserving local vegetables. He was greatly assisted in his investigation by the Dominion Horticulturist at Ottawa and by Mr. C. C. Eidt of the Division of Horticulture, and as a result he was able on his return to submit a very comprehensive report, which however was unfavourable to the adoption of dehydration as a solution of Bermuda's problem because of special difficulties which would be met in desiccating and in storing the dried product in so humid a climate. Increased refrigeration was recommended instead for conserving produce.

Increased Fruit Production. Perhaps the most popular activity of the Department during the year was the campaign to encourage the greater production of fruit. The lack of home-grown fruit has often been stressed in the past, and has been brought into special prominence during the war in the absence of imported fruit. The matter was taken up by a committee of the Board under the active chairmanship of Mr. H. St. G. Butterfield, and, following the appointment of Mr. C. A. Baker as Horticulturist on 1st July, measures were taken to encourage the growing of fruit and especially of the different types of citrus. It was appreciated that the growing of citrus is unlikely to be profitable as a commercial

undertaking under normal conditions when cheap and abundant supplies are readily available from the West Indies. On the other hand it was pointed out that a few trees planted in every man's garden would immensely improve the supply of fruit at insignificant cost to each grower, and it was decided to recommend such planting on a small scale rather than large plantings. In order to save time arrangements were made to import budded trees from Florida. The Plant Pathologist paid a visit to Florida between August and December and he obtained information on varieties and stocks, fertilisers and spraying materials, and methods of cultivation. A debt of gratitude is due to the Bureau of Plant Industry of the United States Department of Agriculture for aiding him in every way, and special thanks are due to Dr. F. E. Gardner in charge of the Sub-Tropical Fruit Field Station at Orlando, Florida, and to Dr. A. F. Camp at the University of Florida Citrus Experiment Station, Lake Alfred. On his return, Mr. Waterston submitted a report containing his findings and recommendations, which dealt mainly with citrus but also with a wide range of other kinds of fruit which might be grown extensively in Bermuda.

Experimental Work. Tests of vegetable varieties were made at the Agricultural Station as time permitted. In view of the difficulty of importing seed of Indian cauliflower an attempt was made to produce seed at the Station and a plot of cauliflower of variety Early Market was left to seed. Unfortunately the time of heading coincided with the exceptionally rainy period in the Autumn and most of the heads rotted and only a small amount of seed was saved. This proved to have good germination and under normal weather conditions it appears likely that a supply of seed could be maintained locally.

A test of oats resistant to crown rust, *Puccinia coronata*, made by the Plant Pathologist proved of much interest and practical value. Several rust-resistant varieties sent by Dr. T. R. Stanton of the United States Department of Agriculture were grown in rows separated by ordinary oats from a feed-bag, which was planted as a control. This was attacked severely and turned brown and shrivelled while some of the resistant varieties stood up green and vigorous in marked contrast. As damage by crown rust is the chief difficulty in growing oats as a green fodder crop the value of these resistant kinds is apparent. Four varieties which proved immune from rust under the conditions of the experiment were Bond (2733), Sac (3907), Bond x Fulghum (4076) and Bond x Alber (4079). A large supply of variety Sac was obtained for extensive trials in 1944.

Extension. Advice and information were conveyed to growers and to the general public by the spoken and written word and by demonstrations. Good use was made of the Government Broadcast which was in operation for part of the year, a weekly bulletin being issued to advise gardeners what work to do in the garden and a marketing report to inform housewives what produce was plentiful in the market. Talks were given at meetings of Garden Clubs and Arbor Societies and at one or two farmers' meetings. A Victory Garden, which was intended to represent the vegetable plot of a small household, was started at the Agricultural Station and was kept planted with seasonable vegetables. The operations being done in it were published in the press and by broadcast.

Assistance was given to school-gardens by the supply of seeds and plants, and by instructions and advice. A competition was arranged for a shield given by the Garden Club of Bermuda. This was won for the third year by Springhill School.

The Exhibition grounds at the Agricultural Station were lent for a fête in aid of charities on 8th May and the occasion was taken to stage exhibits of vegetable produce. A competition for a prize presented by Sir Howard Trott was held in which the various parishes strove to see which could prepare the finest exhibit of vegetables, fruits and preserves, grown or made in the parish. The award was won by Warwick Parish, with Paget and Smiths close behind. There were at the same time exhibits from school gardens and a very attractive exhibit shown by the Department.

Plant Pathology. During the year further advances were made by the Plant Pathologist in the study of the so-called blight of Bermuda cedar. This proved to be an entomological problem, two pests being found damaging the trees. One was the Fulgorid plant-bug *Ormenis infuscata* Stal, which was seen abundantly on affected foliage in May. Young shoots appeared to be killed in a short time by these hoppers suggesting that in addition to injury caused by wounding and sap removal the plant tissues may be injected with a toxic substance. The damage is most marked in dry seasons on trees growing on shallow soil. Small trees may be completely defoliated and branches of larger trees show a scorched appearance. Where trees are ill-nourished and overcrowded the effects may be fatal, but vigorous trees recover from the attack. Although this insect is not new to Bermuda, its importance as a pest of cedars has been overlooked in the past, possibly because affected trees have been examined too late in the season to find the hoppers at work. The complete life-history of this pest is not known. The eggs are laid in plant tissues and are covered with a waxy secretion produced by the female. The nymphs are pale green and carry long tufts of white waxy material at the tip of the abdomen. There are five moults and the nymphal skins and waxy material are good guides in seeking for this pest on the foliage. The adults are wedge-shaped and vary from pale green to a leaden colour, and are dusted over with a fine powder. The only predator noticed in Bermuda is the lacewing fly, *Chrysopa sp.* attacking the young hopper nymphs.

The second pest of consequence is the Juniper Midge, a species of Cecidomyid. This is a minute red fly which lays its eggs in individual leaf-scales of the cedar. The larvae bore into the soft twig at the base of a needle and bring about the death of the twig. Dr. H. F. Barnes of the Rothamsted Experimental Station has identified specimens from Bermuda as being very close to *Contarinia juniperina* Felt. This species was first described by Felt as recently as 1939 as causing severe damage to cedars in parts of the United States. It was controlled there by a parasite but no evidence of a parasite has yet been noted in Bermuda.

Another insect found on cedar foliage, which is of interest though not apparently a cause of serious damage, is a species of aphid identified by Dr. W. J. Hall as of the genus *Neochmosis.* The species has yet to be determined. The aphids are dark brown in colour and are difficult to see as they match the colour of the twigs. They are normally gregarious, occurring in groups of five or more, feeding head downwards in the crutch of small branchlets or on the leaves. They can readily be found when attended by the common ant, *Pheidole megacephala F.* by following the path taken by this insect. The damage caused by these aphids resembles that caused by the cedar scale, *Chrysomphalus agavis* Ths. & Ckll. There is a gradual yellowing of the foliage and eventual defoliation, but the shoots are killed slowly in contrast to the hopper-burn. The

aphids are normally controlled by the predator hover flies *Allograpta obliqua* Say. and *Mesogramma marginata* Say. while the scale is parasitised by minute wasps.

While search is being made for parasites or predators of these pests, the value of cultural measures deserves most fully to be stressed. Every encouragement should be given to pruning and the thinning of cedars, especially where the soil is poor and shallow, in order to stimulate new growth and strengthen the tree. The pruning demonstration made by the Department in 1938 on several properties has shown how effective and profitable such treatment can prove.

New records of fungi made during the year included *Ciliospora ? gelatinosa Zimm.* on leaves of Bermuda cedar, *Juniperus bermudiana* L., and on fallen leaves of the palm *Archontophoenix Alexandrae* Wendel & Drude; *Delacroixia coronata* (Cost.) Sacc. & Sydow, which, though taken from leaves of cedar, is an entomophagous fungus and was found to destroy the dry wood termite under humid conditions; *Mucor hiemalis* Wehmer found on a dead drywood termite *Kalotermes approximatus* Say; *Mucor mucedo* L. ex Fr. on fruit of *Eugenia uniflora* L., on the tree; *Microsphaera euphorbiae* Peck on *Hibiscus Sabdariffa* L.; *Uromyces dolicholi* Arthur on *Cajanus cajan* (L) Millsp. *Erysiphe graminis* DC., on barley; and *Bacillus phytophthorus* (Frank) Appel on seed potatoes of variety Sebago, imported from Maine. New host-records included *Sclerotinia sclerotiorum* (Lib.) de Bary on pods of *Cajanus cajan* (L) Millsp., and *Polyporus graminicola* Murrill on the rotten roots of three hosts, *Carissa grandiflora A.* DC., *Cycas revoluta* Thunb. and *Punica granatum* L. Algal leaf-spot, caused by *Cephaleuros mycoidea* Karst. was recorded for the first time in Bermuda on leaves of *Pimenta officinalis* Lindl.

In addition to the insects recorded from Bermuda cedar, two interesting records include the Whitefly, *Metaleurodicus cardini* Back on *Citrus sinensis* (L.) and on *Citharexylum spinosum* L.: and the Carpenter-Bee *Xylocopa virginica,* Druy, live specimens of which were taken from lumber imported from North America. No live specimens of Japanese Beetle, *Popillia japonica,* were intercepted but dead ones were found in a ship's cargo from the United States.

Horticulture. In addition to the fruit production campaign which was the main horticultural project, the improvement of the countryside by tree-planting was encouraged wherever possible. Assistance was given to the United States Army and Naval Authorities in the planting of suitable trees and shrubs at the Defence Bases. Government House grounds were kept in attractive condition by the Department, and also the Bernard Park and the small park at the Foot of the Lane in Paget.

The ornamental part of the Agricultural Station was well maintained and continued to attract interest. Amongst new varieties of plants introduced for trial were the mountain papaw, *Carica candamarcensis* obtained through the kindness of the British Consul at Guayaquil, Ecuador and *Carica Papaya,* varieties Ruhl's and Cuban, (bisexual), and Betty, (dwarf) sent by the Plant Pathologist from Florida.

Efforts made by the Department to interest farmers and gardeners in bee-keeping bore fruit and an active Association of Bee-keepers was formed. Bee-keeping supplies were stocked at the Agricultural Station and were sold to bee-keepers at cost.

Veterinary Work. Outbreaks of disease amongst livestock kept the Government Veterinary Officer busily employed throughout the year. A significant increase in tuberculosis of cattle was revealed by the official tests early in the year and measures were accordingly taken to improve the efficiency of the existing programme of testing and slaughter. Legislation was passed extending the compulsory testing to all cattle (instead of merely to those in herds from which milk is sold, as was formerly the rule) and also prohibiting the sale of cattle unless they had recently been tested for tuberculosis and proved negative. Arrangements were made for the Government Veterinary Officer to test all cattle at six-monthly intervals, and three-monthly in herds where any infection was found. As a result of 1488 tests, 92 reactors were found and were promptly destroyed. By the end of the year the incidence appeared to be less and it is hoped by continuing these active measures to eradicate the disease.

The vaccination of calves against Bang's Disease was continued as a compulsory measure, 129 calves being vaccinated during the year. The aim is to build up over the course of a few years an immunised cattle population. The special strain of vaccine for this work and the tuberculin for the other tests were supplied through the kindness of the United States Army Veterinary Service and the Bureau of Animal Industry at Washington to whom cordial thanks are due.

During the hot weather an outbreak of disease occurred amongst pigs in Southampton as a result of which about 200 died from two or three large herds. Although hog cholera was at first suspected, typical symptoms were not found, and the Veterinary Officer attributed the disease to improper feeding of uncooked swill and dirty housing conditions. Inoculation of pigs against hog cholera was carried out as a precautionary measure and improvements made in the accommodation of pigs at the places affected. It may be noted that some loss of pigs occurs frequently in the hot weather, and improper feeding and housing are common factors which predispose the pigs to infection.

There was a very severe epidemic of canine distemper which attacked a high proportion of the dogs in the Colony and killed many. No distemper had been seen in Bermuda for several years and it was suggested that an affected dog had been allowed to run ashore from an allied naval ship contrary to quarantine regulations. At the end of several weeks and with the help of serum the disease was checked, and the attention of the various naval authorities was drawn to the regulations in order to avoid any repetition.

Legislation. Reference has already been made to amendments in the Byelaws for the Control of Animal Disease dated 9th December 1943, rendering compulsory the testing of all cattle for tuberculosis once a year or at shorter intervals if so specified, and requiring testing before the animal may be sold or transferred. Orders were made by the War-Time Supplies Commission, with whom the Board of Agriculture kept in close touch, fixing maximum and minimum prices for local produce.

Acknowledgements. A special word of acknowledgement is due to the clerical staff whose work has multiplied with the ever-increasing activities of the Department. Grateful thanks are expressed to individuals and institutions, too many to mention by name, who have sent publications, and planting-material, and have helped in various ways.

T. A. RUSSELL,
Director of Agriculture.

15th August, 1944.

Board of Agriculture, 1943.

From 1st. January to 30th June, 1943.

Hon. W. J. H. Trott, C.B.E., M.C.P., Chairman
Wor. B. C. C. Outerbridge, J.P., M.C.P., Deputy-Chairman
Mr. H. T. North, M.C.P.
J. R. Outerbridge
C. V. Zuill
H. St. G. Butterfield
C. Hollis
A. C. Benevides
E. C. McLaughlin

From 1st. July to 31st. December, 1943.

Wor. B. C. C. Outerbridge, J.P., Chairman
Mr. J. R. Outerbridge, Deputy-Chairman
H. T. North, M.C.P.
C. V. Zuill
H. St. G. Butterfield
A. C. Benevides
E. C. McLaughlin
R. Peniston
A. C. Down, M.C.P.

Department of Agriculture, 1943.

Director of Agriculture, T. A. Russell, B.Sc. A.R.C.S., A.I.C.T.A. Dip. Agr. (Cantab).
Plant Pathologist, J. M. Waterston, B.Sc. (Edin.) A.I.C.T.A.
Agricultural Assistant, W. R. Evans
Horticulturist, G. R. Groves to 8th February
C. A. Baker from 1st. July
Inspector of Produce, T. Arthur Hollis
Government Veterinary Officer, C. J. Cooper, V.S.
Assistant Inspector of Produce, C. V. S. Early.